

## COLLOQUIUM

### *Data-Intensive Scientific Discovery in the Big Data Era*

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**Abstract:** Data science has become a powerful tool to extract knowledge from the large data. However, despite massive data growth in the sciences, it remains unclear whether Big Data can lead to scientific breakthroughs. I will introduce a new knowledge discovery paradigm – theory-guided data science – that brings together novel data analysis methods and powerful scientific theory to extract knowledge from complex spatio-temporal data. The principles of this paradigm will be demonstrated with a data mining application to monitor the global ocean system.

Bio:

James Faghmous is a Research Associate at the University of Minnesota where he develops new data science methods for data-intensive scientific discovery. In 2015, James received an inaugural NSF CRII Award for junior faculty and his doctoral dissertation received the "Outstanding Dissertation Award" in Science and Engineering at the University of Minnesota. James received his Ph.D. from the University of Minnesota in 2013 where he was part of a 5-year \$10M NSF Expeditions in Computing project to understand climate change from data. He graduated Magna Cum Laude in 2006 with a B.Sc. in computer science from the City of College of New York where he was a Rhodes and a Gates Scholar nominee.

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